

WHAT IS CLAIMED IS:

1. A method for shaping web material comprising the steps of:

(a) feeding a web material between a rotary die and an anvil roller,

wherein the rotary die and the anvil roller are rotating in opposite directions;

5 (b) cutting the web material with the rotary die into a web product and a web flash;

(c) conveying the web product away from the rotary die and anvil roller;

and

(d) removing the web flash for recycling.

10 2. The method for shaping web material of claim 1, wherein feeding a web material comprises conveying the web material on a vacuum belt.

3. The method for shaping web material of claim 1, wherein conveying the web product away comprises conveying the web product on a vacuum belt.

15 4. The method for shaping web material of claim 1, wherein removing the web flash away comprises conveying the web flash on a belt.

5. The method for shaping web material of claim 1, wherein removing the web material flash portion further comprises applying lubricant to the rotary die to ease removal of the web flash from the rotary die.

20 6. The method for shaping web material of claim 1, wherein the web material comprises more than one layer and the anvil roller is configured to produce a kiss-cut, wherein the rotary die cuts only one layer of the web material.

7. The method for shaping web material of claim 1, wherein the anvil roller is configured to produce a through-cut.

8. A method for laminating a primary web material and a secondary web material comprising the steps of:

5 (a) feeding the secondary web material between a rotary die and a first anvil roller, wherein the rotary die and the first anvil roller are in longitudinal contact and are rotating in opposite directions;

(b) cutting the secondary web material with the rotary die into a secondary web product and a secondary web flash;

10 (c) removing the secondary web flash for recycling;

(d) adhering the secondary web product to the rotary die;

(e) rotating the secondary web product around the rotary die to the bottom of the rotary die;

15 (f) feeding the primary web material between the rotary die and a second anvil roller, wherein the rotary die and the second anvil roller are in longitudinal contact and are rotating in opposite directions;

(g) joining the secondary web product and the primary web material at a location between the rotary die and the second anvil roller;

20 (h) cutting the primary web material with the rotary die into a primary web product and a primary web flash, wherein the primary web product is equal in size and shape to the secondary web product and is attached to the secondary web product to form a final product;

(i) conveying the final product away from the rotary die and the second anvil roller; and

(j) removing the primary web flash for recycling.

9. The method for laminating a primary web material and a secondary web

5 material of claim 8, wherein feeding the primary web material comprises conveying the primary web material on a vacuum belt.

10. The method for laminating a primary web material and a secondary web material of claim 8, wherein conveying the final product away comprises conveying the final product away on a vacuum belt.

10 11. The method for laminating a primary web material and a secondary web material of claim 8, wherein removing the secondary web flash comprises conveying the secondary web flash on a belt.

12. The method for laminating a primary web material and a secondary web material of claim 8, wherein removing the secondary web flash comprises
15 vacuuming the secondary web flash off of the first anvil roller.

13. The method for laminating a primary web material and a secondary web material of claim 8, wherein removing the primary web flash comprises conveying the primary web flash on a belt.

14. The method for laminating a primary web material and a secondary web
20 material of claim 8, wherein removing the secondary web flash further comprises applying lubricant to the rotary die to ease removal of the secondary web flash from the rotary die.

15. The method for laminating a primary web material and a secondary web material of claim 8, wherein removing the primary web flash further comprises applying lubricant to the rotary die to ease removal of the primary web flash from the rotary die.

5 16. The method for laminating a primary web material and a secondary web material of claim 8, wherein adhering the secondary web product to the rotary die comprises applying a vacuum through the rotary die.

17. An apparatus for shaping a web material comprising:

(a) a rotary die rotating in a first direction;

10 (b) an anvil roller contacting the rotary die and rotating in a second direction opposite to the first direction, wherein a web material enters the apparatus between the rotary die and the anvil roller such that the rotary die cuts the web material into a web product and a web flash; and

15 (c) a web flash removal mechanism that removes the web flash from the apparatus for recycling.

18. The apparatus of claim 17, wherein the web material comprises more than one layer and the anvil roller is configured to produce a kiss-cut, wherein the rotary die cuts only one layer of the web material.

19. The apparatus of claim 17, wherein the anvil roller is configured to produce a
20 through-cut.

20. The apparatus of claim 17, wherein the web flash removal mechanism comprises a belt conveyor.

21. The apparatus of claim 17, further comprising a lubricant applicator that applies lubricant to the rotary die to ease removal of the web flash from the rotary die.

22. The apparatus of claim 17, further comprising:

5 (d) a first vacuum belt, adjacent to the rotary die and the anvil roller on an incoming side of the apparatus, and delivering the web material to the apparatus; and

10 (e) a second vacuum belt, adjacent to the rotary die and the anvil roller on an outgoing side of the apparatus, and conveying the web product away from the apparatus.

23. An apparatus for laminating a primary web material and a secondary web material comprising:

(a) a rotary die rotating in a first direction;

15 (b) a first anvil roller contacting the rotary die and rotating in a second direction opposite to the first direction, wherein the secondary web material enters the apparatus between the rotary die and the first anvil roller such that the rotary die cuts the secondary web material into a secondary web product and a secondary web flash, wherein the secondary web flash is removed for recycling, and wherein the secondary web product adheres to the rotary die and travels around the rotary die;

20 (c) a second anvil roller contacting the rotary die and rotating in the second direction, wherein the primary web material enters the apparatus between

the rotary die and the second anvil roller, wherein the secondary web product travelling around the rotary die meets and adheres to the primary web material as the primary web material enters the apparatus between the rotary die and the second anvil roller, wherein the rotary die cuts the primary web material into a primary web product and a primary web flash, and wherein the primary web flash is removed for recycling and the primary web product that is attached to the secondary web product exits the apparatus;

(d) a primary web flash removal mechanism that removes the primary web flash from the apparatus; and

(e) a secondary web flash removal mechanism that removes the secondary web flash from the apparatus.

24. The apparatus of claim 23, wherein the primary web flash removal mechanism comprises a belt conveyor.

25. The apparatus of claim 23, wherein the secondary web flash removal mechanism comprises a belt conveyor.

26. The apparatus of claim 23, wherein the secondary web flash removal mechanism comprises a vacuum nozzle contacting the first anvil roller where the secondary web flash exits the rotary die and the first anvil roller.

27. The apparatus of claim 23, wherein the rotary die further contains a channel system through which a vacuum is drawn to adhere the secondary web product to the rotary die.

28. The apparatus of claim 23, wherein the rotary die further contains a channel system through which a coolant flows.

29. The apparatus of claim 23, further comprising an applicator that applies lubricant to the rotary die to ease removal of the primary web flash and the

5 secondary web flash from the rotary die.

30 The apparatus of claim 23, further comprising an adhesive applicator that applies adhesive to the rotary die to temporarily adhere the secondary web product to the rotary die.

31. The apparatus of claim 23, further comprising:

10 (f) a first side nip roller contacting the first anvil roller on a first side; and

(g) a second side nip roller contacting the first anvil roller on a second side opposite to the first side.

32. The apparatus of claim 23, further comprising a control system that regulates the production speed, web tension, and web sheet height of the primary web material, the secondary web material, the primary web flash, the primary web product, the secondary web flash, and the secondary web product.

33. The apparatus of claim 23, wherein the rotary die contains a foam that presses the secondary web product onto the primary web product.

34. The apparatus of claim 23, wherein the first anvil roller is configured to produce a through-cut.

35. The apparatus of claim 23, wherein the first anvil roller is configured to produce a kiss-cut.

36. The apparatus of claim 23, wherein the second anvil roller is configured to produce a kiss-cut.

37. The apparatus of claim 23, wherein the second anvil roller is configured to produce a through-cut.

5 38. The apparatus of claim 23, further comprising a lifting mechanism on which the rotary die and the first anvil roller are mounted, said lifting mechanism being able to lift the rotary die and the first anvil roller out of service.

39 The apparatus of claim 23, further comprising:

10 (f) a first vacuum belt, adjacent to the rotary die and the anvil roller on an incoming side of the apparatus, and delivering the web material to the apparatus; and

(g) a second vacuum belt, adjacent to the rotary die and the anvil roller on an outgoing side of the apparatus, and conveying the web product away from the apparatus.

15 40. A method for changing a shaping or lamination process comprising:

(a) arranging a plurality of die and anvil roller assemblies in succession along a production line;

(b) mounting the plurality of die and anvil roller assemblies on a plurality of lifting mechanisms;

20 (c) engaging a first portion of the plurality of die and anvil roller assemblies in production;

(d) lifting a second portion of the plurality of die and anvil roller assemblies out of service; and

(e) simultaneously raising the first portion of the plurality of die and anvil roller assemblies and lowering the second portion of the plurality of die and anvil

5 roller assemblies.